Committee on Earth Observation Satellites

CEOS WGISS Common Data Framework for WGISS Connected Data Assets

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CEOS Background & Mission

- The Committee on Earth Observation Satellites (CEOS) has been serving as a focal point for international coordination of space-related Earth Observation (EO) activities since 1984.
- CEOS seeks to optimize benefits through cooperation of members in mission planning and in development of compatible data products, formats, services, applications, and policies.
- As the “space arm” of the intergovernmental Group on Earth Observations, CEOS is implementing high priority actions to support delivery of societal benefit.

Mission

CEOS ensures international coordination of civil space-based Earth observation programs and promotes exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind.

What is WGISS?

Working Group on Information Systems and Services.

- **WGISS promotes collaboration in the development of systems and services that manage and supply Earth observation data as a working group of CEOS.**

- **The activities and expertise of WGISS span the information life cycle by enabling:**
  - **the sharing of CEOS agency investigations, developments, experiences and lessons learned relating to EO data stewardship.**
  - **the discovery, access, preservation and use of CEOS agency data.**
  - **the exchange of technical information and lessons-learned about current and trending software technologies and services.**

WGISS website: http://wgiss.ceos.org

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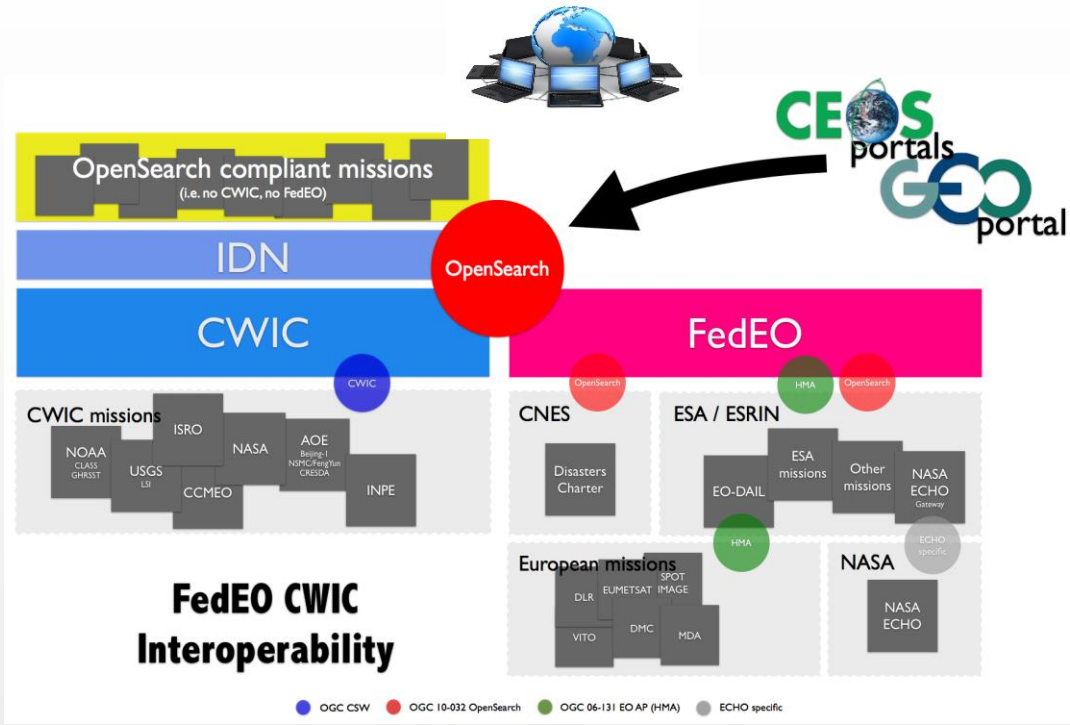
WGISS Interoperability Standards Architecture

- **WGISS has adopted the CEOS OpenSearch Best Practices in addition to the Open Geospatial Consortium (OGC) Catalog Services for the Web (CSW) v2.0.2 standards for searching remote sensing catalogs, both for collection and inventory information.**

- **The FedEO, CWIC and IDN systems have implemented the WGISS supported standards are providing access to over:**

5000+ collections and 270+ millions granules of EO mission data.



- **The IDN provides descriptions of data sets (collection level) of relevance to global change research. Both the CWIC and the FedEO systems offer search of inventory data (granule level) and access to the data records. A WGISS system level team will provide technical support to register data collections in the IDN and to on-board new data providers to connect their inventory systems to CWIC or FedEO or as an independent data source.**

Towards a WGISS Federation

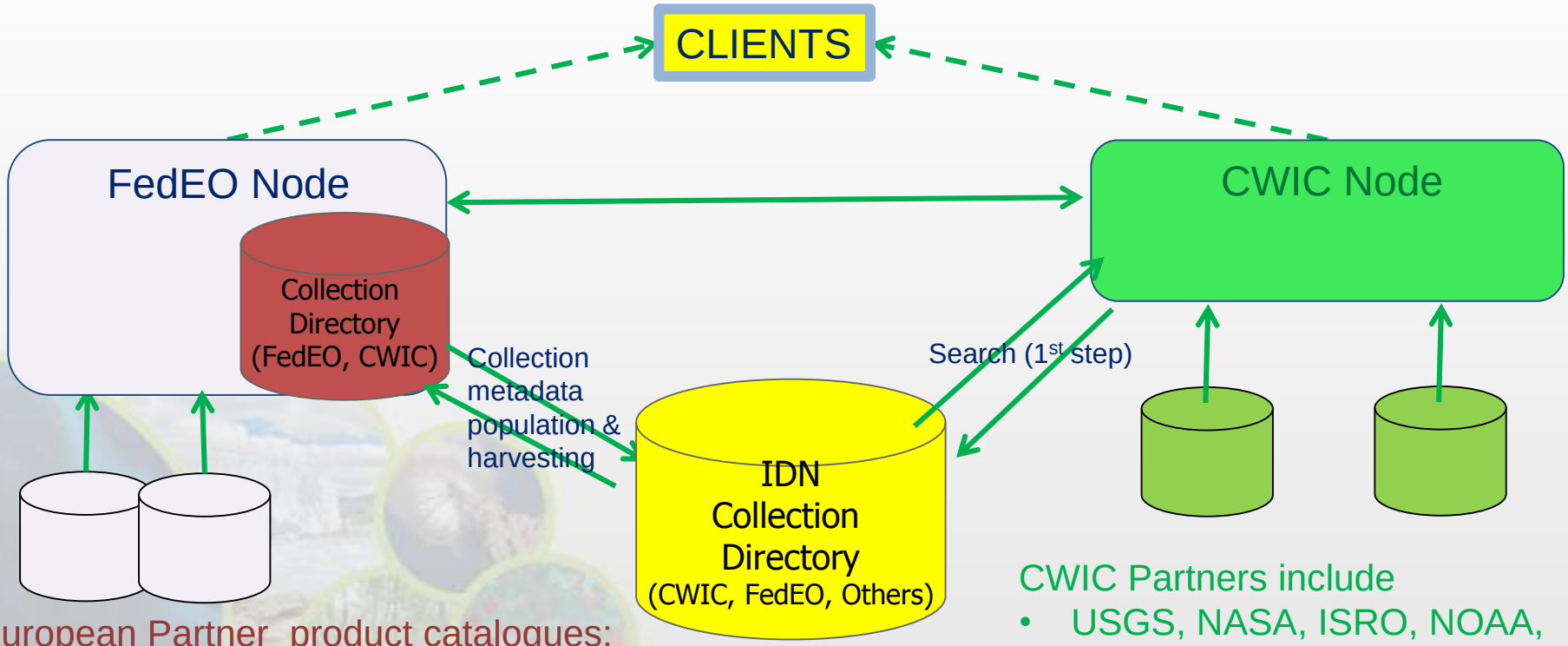
- Data collection registration at the IDN using the IDN keywords; Info about how granule search is supported will be included in the data collection registration
- Data partners need to support 1 of the 2 supported WGISS standards
  - CEOS OpenSearch Best Practices (v 2)
  - OGC CSW 2.0.2
- All searchable data must have a data access path
  - Data download
  - Data order (free or with cost)
  - Email order (free or with cost)
- A technical POC needed for each data partner

Client Partners

- Clients can offer search and access to all the satellite data available through the WGISS Federation
- Clients can offer search and access to a limited subset of data available through the WGISS Federation along with other services
- Clients can offer support for a 2-step search
  - Discovery through collection search using platform, instrument, science keywords, etc. (IDN). The IDN data record will contain info about how granule search is supported
  - Search granule metadata at data partners via CWIC, FedEO, Independent servers
- All granule search results will contain links to data access

Current Architecture Consolidation Approach

***PHASE 1*: Consolidation of current CWIC/FedEO/IDN overall architecture to quickly address some of the identified open issues**



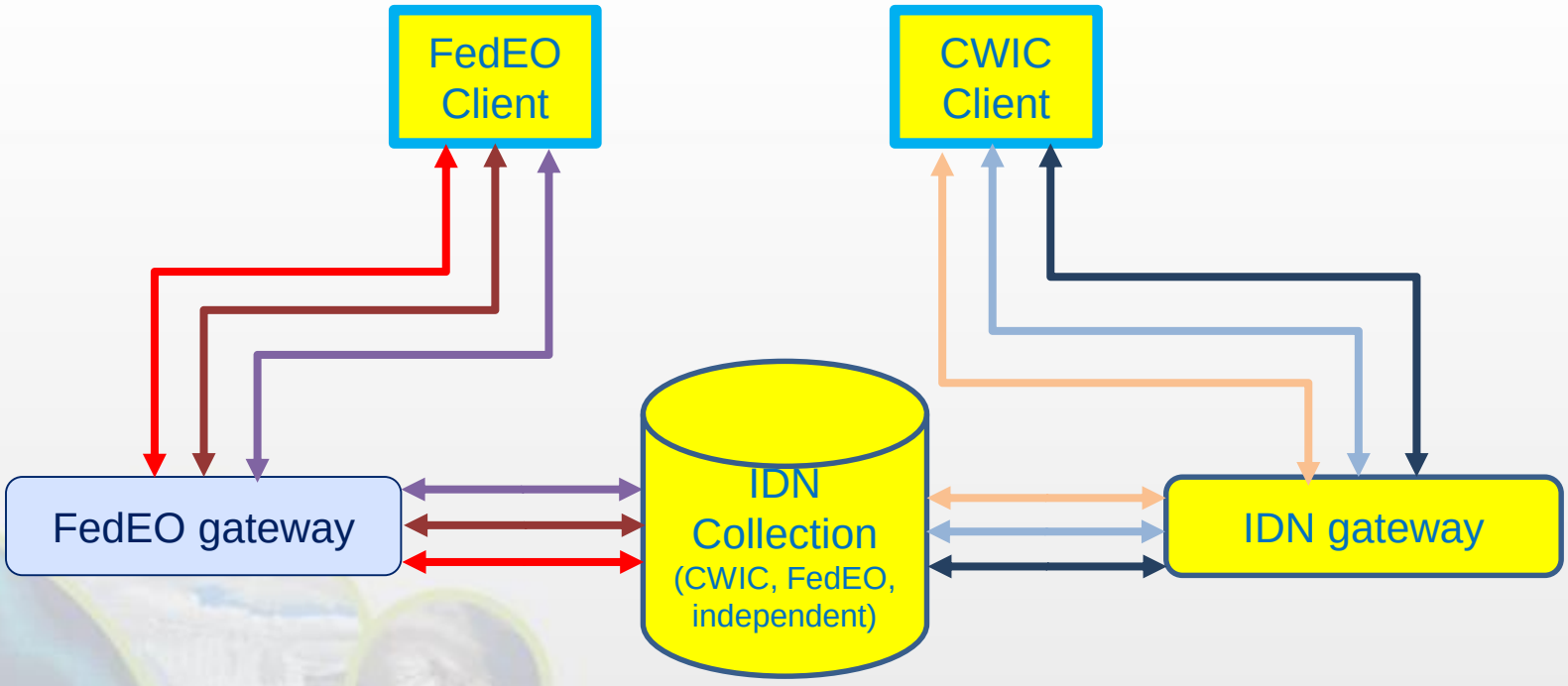
European Partner product catalogues:

- ESA, EU Copernicus, DLR, CNES, ROSCOSMOS, VITO, EUMETSAT, ASI, UKSA

CWIC Partners include

- USGS, NASA, ISRO, NOAA, NOAA/GHRSST, INPE, AOE, CCMEO, EUMETSAT, Australia

Collection search



FedEO client searches IDN collection

FedEO client searches FedEO collection

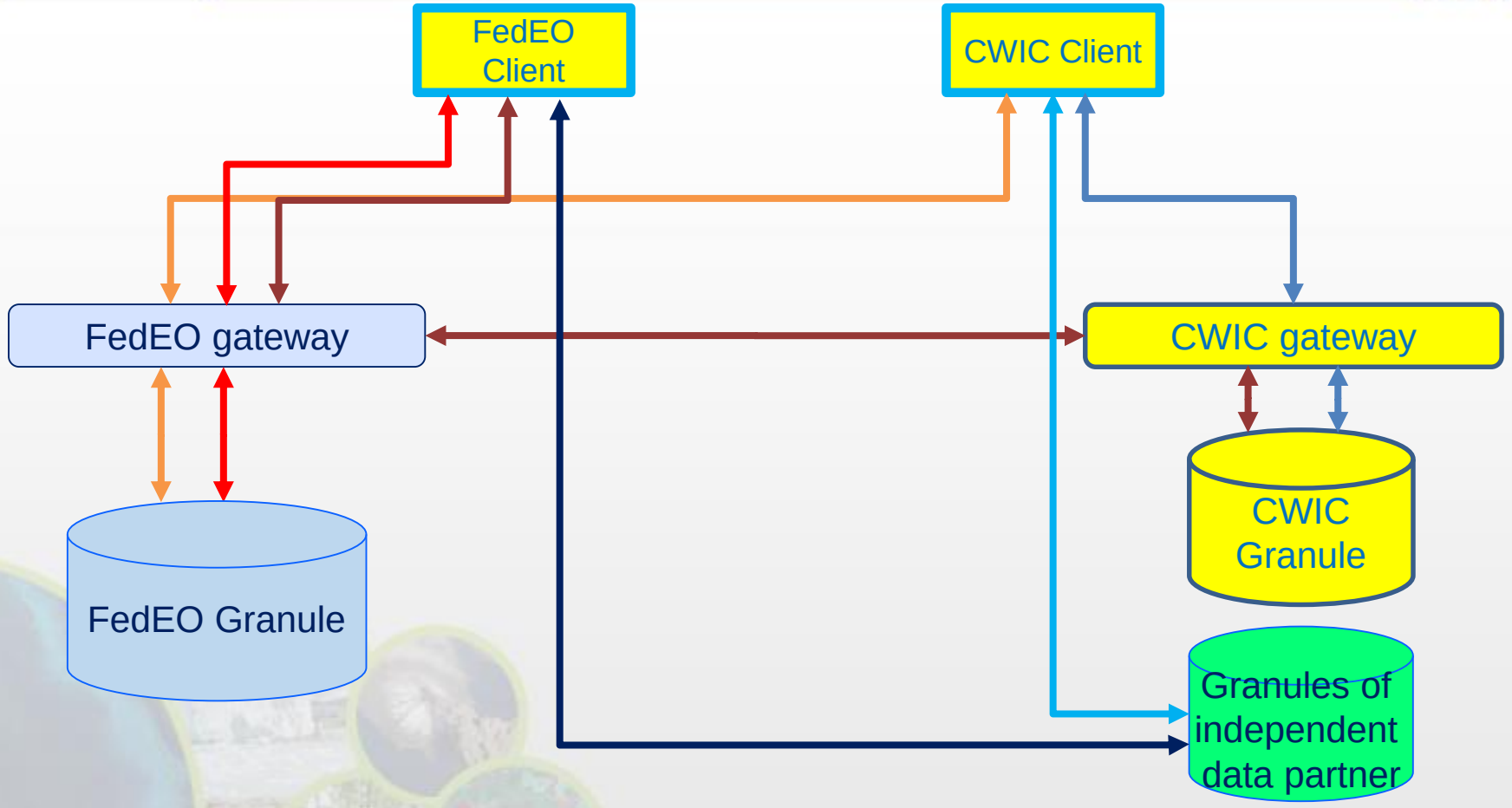
FedEO client searches independent collection

CWIC client searches IDN collection

CWIC client searches FedEO collection

CWIC client searches independent collection

Granule search



CWIC client searches CWIC granule

CWIC client searches FedEO granule

CWIC client searches granules of independent data partner

FedEO client searches CWIC granule

FedEO client searches FedEO granule

FedEO client searches granules of independent data partner

Connected Data Assets

Connected Data Assets

This page contains details about the CEOS Agencies' data collections that are connected via the supported WGISS standards – OGC CSW 2.0.2 and CEOS OpenSearch Best Practices – which allow independent clients to search and access their unrestricted data.

Each system link listed below will provide information about which collections and how many granules the system connects to. These metrics will be updated regularly, as often as monthly.

A Data Collection consists of the data records of one mission, sensor, and product type and the associated knowledge; an ensemble of some products/granules having a common focus or theme or purpose.

A data Granule is the smallest aggregation of data which is independently managed(ie described, inventoried). A data collection can consist of many granules.

IDN metrics

IDN (International Directory Network) contains high level descriptions of data collections. CEOS Agencies are encouraged to register their data collections at the IDN. The IDN metrics page contains information about how many collections are registered in the IDN.

CWIC metrics

CWIC (CEOS WGISS Integrated Catalog) provides a translation gateway from the WGISS-supported search standards, OGC CSW and CEOS OpenSearch Best Practices, to the inventory systems of the CWIC Data Partners that describe collections of data granules. The CWIC metrics page contains information about the CEOS Agencies' data collections and the number of granules per collection that are accessible via CWIC.

FedEO metrics

FedEO (Federated Earth Observation Gateway) provides brokered collection discovery, granule discovery, access, and ordering capabilities to mainly European & Canadian EO missions data based on HMA (Heterogeneous Missions Accessibility) and OGC (Open Geospatial Consortium) standard interfaces. It implements the OGC OpenSearch and CEOS OpenSearch Best Practices (and other) interfaces for an increasing number of discoverable and accessible EO data collections, and for interfacing with CEOS and other international Community Catalogues and Clients. The FedEO metrics page contains information about the data collections and the number of granules per collection that are accessible via FedEO.

System Level Team

Created an integrated system team to coordinate and oversee the WGISS integrated system and standards:

- **Coordinate operations, maintenance and evolution activities (e.g. for infrastructure, standards adoption, etc).**
- **On-board new data partners**
- **Provide technical support for client partners**
- **Monitor the health of the federated system and report outages and errors etc. to the partners**
- **Test all the components of the federated system, including end to end search and data access**
- **Work with data and client partners to identify and resolve system and component bugs**
- **Provide support for metrics collection**